

WE CLAIM:

1. A method for identifying a chemoattractant receptor antagonist, comprising:

incubating a cell population comprising first and second chemoattractant
5 receptors;

contacting the cell population with an inhibitory concentration of a ligand for the first chemoattractant receptor;

contacting the cell population with an inhibitory concentration of a ligand for the second chemoattractant receptor;

10 contacting the cell population with a candidate antagonist;

assaying migration of the cell population, wherein migration identifies the candidate antagonist as an antagonist of at least one of the first and second chemoattractant receptors; and

determining whether an identified antagonist is an antagonist for one of the
15 first chemoattractant receptors, the second chemoattractant receptor, or both.

2. The method of claim 1, wherein the step of contacting the cell population with a candidate antagonist comprises contacting the cell population with at least two candidate antagonists.

20 3. The method of claim 1, wherein the candidate antagonist is a peptide, peptide-like molecule, non-peptidyl organic compound, inorganic compound, nucleic acid or antibody.

25 4. The method of claim 1, wherein the inhibitory concentration of the ligand for the first chemoattractant receptor inhibits cell migration greater than or equal to about 50% of maximal ligand-activated cell migration.

30 5. The method of claim 1, wherein the inhibitory concentration of the ligand for the first chemoattractant receptor inhibits cell migration greater than or equal to about 95% of maximal ligand-activated cell migration.

6. The method of claim 1, wherein the inhibitory concentration of the ligand for the first chemoattractant receptor inhibits cell migration greater than or equal to about 100% of maximal ligand-activated cell migration.

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7. The method of claim 1, wherein the inhibitory concentration of the ligand for the second chemoattractant receptor inhibits cell migration greater than or equal to about 50% of maximal ligand-activated cell migration.

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8. The method of claim 1, wherein the inhibitory concentration of the ligand for the second chemoattractant receptor inhibits cell migration greater than or equal to about 95% of maximal ligand-activated cell migration.

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9. The method of claim 1, wherein the inhibitory concentration of the ligand for the second chemoattractant receptor inhibits cell migration greater than or equal to about 100% of maximal ligand-activated cell migration.

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10. The method of claim 1, wherein the first and second chemoattractant receptors are each independently a chemokine receptor.

11. The method of claim 10, wherein the chemokine receptor is selected from the group consisting of CCR, CXCR, CX3CR, and XCR classes of chemokine receptors.

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12. The method of claim 11, wherein the chemokine receptors are CXCR1, CXCR2, CXCR3, CXCR4, CXCR5, CCR1, CCR2, CCR3, CCR4, CCR5, CCR6, CCR7, CCR8, CCR9, CCR10, CCR11, CX3CR1 or XCR1.

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13. The method of claim 1, wherein the ligand for the first chemoattractant receptor is a chemokine.

14. The method of claim 13, wherein the chemokine is selected from the group consisting of CCR, CXCR, and CX3CR.

15. The method of claim 14, wherein the chemokine is IL-8, GCP-2, Gro α , Gro β , Gro γ , ENA-78, PBP, MIG, IP-10, I-TAC, SDF-1 α , BLC, MIP-1 α , MIP-1 β , RANTES, HCC-1, HCC-2, HCC-3, HCC-4, MCP-1, MCP-2, MCP-3, MCP-4, eotaxin-1, eotaxin-2, TARC, MDC, MIP-3 α , MIP-3 β , 6Ckine, I-309, TECK, lymphotactin, fractalkine, TCA-4, Exodus-2, Exodus-3, or CK β -11.

16. The method of claim 1, wherein the ligand for the second chemoattractant receptor is a chemokine.

17. The method of claim 16, wherein the chemokine is selected from the group consisting of CCR, CXCR, and CX3CR.

18. The method of claim 17, wherein the chemokine is IL-8, GCP-2, Gro α , Gro β , Gro γ , ENA-78, PBP, MIG, IP-10, I-TAC, SDF-1 α , BLC, MIP-1 α , MIP-1 β , RANTES, HCC-1, HCC-2, HCC-3, HCC-4, MCP-1, MCP-2, MCP-3, MCP-4, eotaxin-1, eotaxin-2, TARC, MDC, MIP-3 α , MIP-3 β , 6Ckine, I-309, TECK, lymphotactin, fractalkine, TCA-4, Exodus-2, Exodus-3, or CK β -11.

19. The method of claim 1, wherein the ligands for the first and the second chemokine receptors are added simultaneously.

20. The method of claim 1, wherein the ligands for the first and the second chemokine receptors are added in series.

21. The method of claim 1, wherein the candidate antagonist is contacted before at least one of the ligands.

22. The method of claim 1, wherein assaying migration comprises measuring a signal.

23. The method of claim 22, wherein the signal is a fluorescent signal.

24. The method of claim 1, wherein assaying comprises counting cells using a microscope.

25. The method of claim 1, wherein assaying comprises labeling cells with a marker.

26. The method of claim 25, wherein the marker is a dye or a radioactive label.

27. The method of claim 1, wherein determining is performed by a method comprising steps of:

incubating a first cell population comprising first chemoattractant receptor with a candidate antagonist;

incubating a second cell population comprising second chemoattractant receptor with the candidate antagonist;

contacting the first cell population with an inhibitory concentration of a ligand for the first chemoattractant receptor;

contacting the second cell population with an inhibitory concentration of a ligand for the second chemoattractant receptor; and

assaying cell migration of the first and the second cell population, wherein cell migration identifies the candidate antagonist as an antagonist of either the first or the second chemoattractant receptor.

28. A method for identifying a chemoattractant receptor antagonist, comprising:

incubating a first cell population and a second cell population, wherein the first cell population comprises a first chemoattractant receptor and wherein the second cell population comprises a second chemoattractant receptor;

contacting the first and the second cell populations with an inhibitory concentration of a ligand for the first chemoattractant receptor;

contacting the first and the second cell populations with an inhibitory concentration of a ligand for the second chemoattractant receptor;

contacting the first and the second cell populations with a candidate antagonist;

assaying migration of the first and the second cell populations, wherein migration identifies the candidate antagonist as an antagonist of at least one of the first and second chemoattractant receptors; and

determining whether an identified antagonist is an antagonist for one of the first chemoattractant receptors, the second chemoattractant receptor, or both.

29. The method of claim 28, wherein the step of contacting the first and the second cell populations with a candidate antagonist, comprises contacting the first and the second cell populations with at least two candidate antagonists.

30. The method of claim 28, wherein the candidate antagonist is a peptide, peptide-like molecule, non-peptidyl organic compound, inorganic compound, nucleic acid or antibody.

31. The method of claim 28, wherein the inhibitory concentration of the ligand for the first chemoattractant receptor inhibits cell migration greater than or equal to about 50% of maximal ligand-activated cell migration.

32. The method of claim 28, wherein the inhibitory concentration of the ligand for the first chemoattractant receptor inhibits cell migration greater than or equal to about 95% of maximal ligand-activated cell migration.

33. The method of claim 28, wherein the inhibitory concentration of the ligand for the first chemoattractant receptor inhibits cell migration greater than or equal to about 100% of maximal ligand-activated cell migration.

5 34. The method of claim 28, wherein the inhibitory concentration of the ligand for the second chemoattractant receptor inhibits cell migration greater than or equal to about 50% of maximal ligand-activated cell migration.

10 35. The method of claim 28, wherein the inhibitory concentration of the ligand for the second chemoattractant receptor inhibits cell migration greater than or equal to about 95% of maximal ligand-activated cell migration.

15 36. The method of claim 28, wherein the inhibitory concentration of the ligand for the second chemoattractant receptor inhibits cell migration greater than or equal to about 100% of maximal ligand-activated cell migration.

37. The method of claim 28, wherein the first and second chemoattractant receptors are each independently a chemokine receptor.

20 38. The method of claim 37, wherein the chemokine receptor is selected from the group consisting of CCR, CXCR, CX3CR, and XCR classes of chemokine receptors.

25 39. The method of claim 38, wherein the chemokine receptors are CXCR1, CXCR2, CXCR3, CXCR4, CXCR5, CCR1, CCR2, CCR3, CCR4, CCR5, CCR6, CCR7, CCR8, CCR9, CCR10, CCR11, CX3CR1 or XCR1.

30 40. The method of claim 28, wherein the ligand for the first chemoattractant receptor is a chemokine.

41. The method of claim 40, wherein the chemokine is selected from the group consisting of CCR, CXCR, and CX3CR.

42. The method of claim 41, wherein the chemokine is IL-8, GCP-2, Gro α , Gro β , Gro γ , ENA-78, PBP, MIG, IP-10, I-TAC, SDF-1 α , BLC, MIP-1 α , MIP-1 β , RANTES, HCC-1, HCC-2, HCC-3, HCC-4, MCP-1, MCP-2, MCP-3, MCP-4, eotaxin-1, eotaxin-2, TARC, MDC, MIP-3 α , MIP-3 β , 6Ckine, I-309, TECK, lymphotactin, fractalkine, TCA-4, Exodus-2, Exodus-3, or CK β -11.

43. The method of claim 28, wherein the ligand for the second chemoattractant receptor is a chemokine.

44. The method of claim 43, wherein the chemokine is selected from the group consisting of CCR, CXCR, and CX3CR.

45. The method of claim 44, wherein the chemokine is IL-8, GCP-2, Gro α , Gro β , Gro γ , ENA-78, PBP, MIG, IP-10, I-TAC, SDF-1 α , BLC, MIP-1 α , MIP-1 β , RANTES, HCC-1, HCC-2, HCC-3, HCC-4, MCP-1, MCP-2, MCP-3, MCP-4, eotaxin-1, eotaxin-2, TARC, MDC, MIP-3 α , MIP-3 β , 6Ckine, I-309, TECK, lymphotactin, fractalkine, TCA-4, Exodus-2, Exodus-3, or CK β -11.

46. The method of claim 28, wherein the ligands for the first and the second chemoattractant receptor are added simultaneously.

47. The method of claim 28, wherein the ligands for the first and the second chemoattractant receptor are added in series.

48. The method of claim 28, wherein the at least one candidate antagonist is contacted before the at least one of the ligands.

49. The method of claim 28, wherein the assaying migration comprises measuring a signal.

50. The method of claim 49, wherein the signal is a fluorescent signal.

51. The method of claim 28, wherein assaying migration comprises counting cells using a microscope.

5 52. The method of claim 28, wherein assaying comprises labeling cells with a marker.

53. The method of claim 52, wherein the marker is a dye or a radioactive label.

10 54. The method of claim 28, wherein determining is performed by a method comprising steps of:

incubating a first cell population comprising first chemoattractant receptor with a candidate antagonist;

15 incubating a second cell population comprising second chemoattractant receptor with the candidate antagonist;

contacting the first cell population with an inhibitory concentration of a ligand for the first chemoattractant receptor;

20 contacting the second cell population with an inhibitory concentration of a ligand for the second chemoattractant receptor; and

assaying cell migration of the first and the second cell population, wherein cell migration identifies the candidate antagonist as an antagonist of either the first or the second chemoattractant receptor.

25 55. A kit comprising
a cell migration apparatus, and
at least one chemokine.

56. The kit of claim 55, wherein the chemokine is lyophilized.

30 57. The kit of claim 55, wherein the kit comprises at least two chemokines.

58. The kit of claim 55, wherein the kit comprises at least three chemokines.
59. The kit of claim 55, wherein the at least one chemokine is in solution.
60. The kit of claim 55, further comprising a cell population comprising at least one chemokine receptor.